Dec. 12, 1961 E. GURIN 3,012,498

PRINTING MACHINE AND PRINTING BLANKET THEREFOR

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Fig. 1.

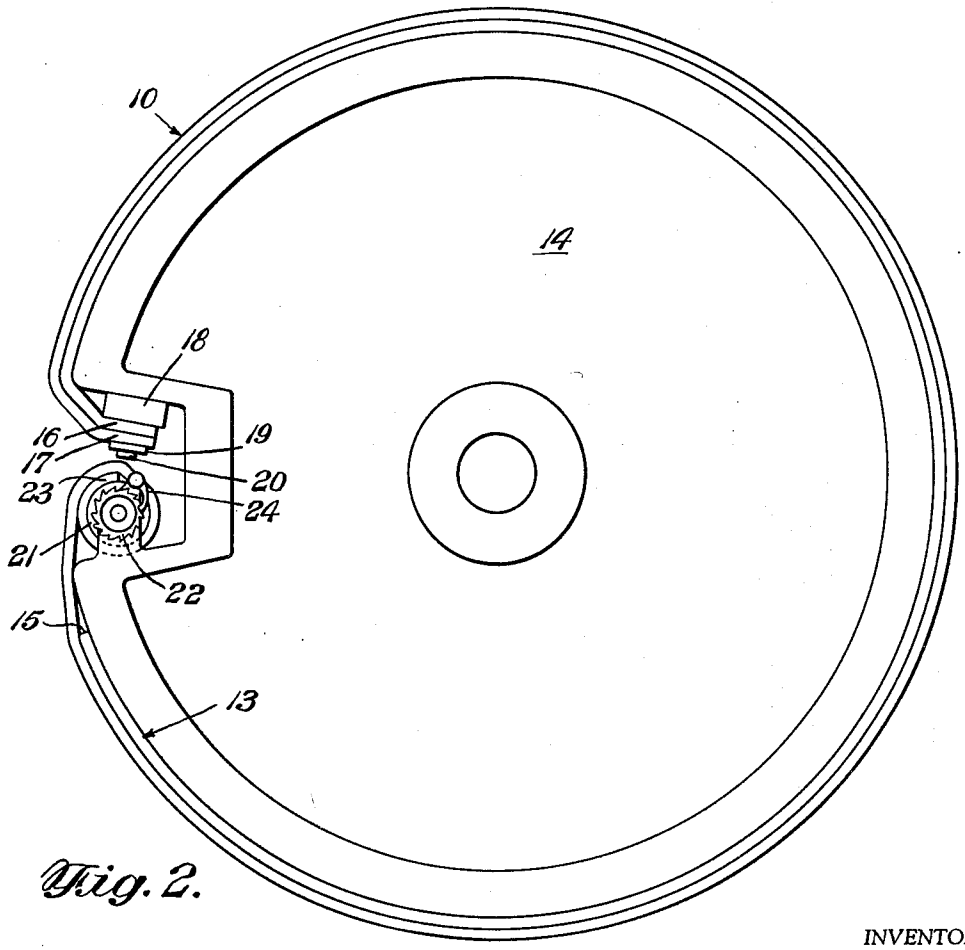


Fig. 2.

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PRINTING MACHINE AND PRINTING BLANKET THEREFOR

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The present invention relates to printing machines, and especially printing machines of the offset type. More particularly, the present invention relates to a printing cylinder for such machines and in combination therewith a novel printing blanket.

Printing cylinders of offset printing machines are ordinarily provided with a printer's blanket composed of a plurality of layers of fabric conventionally bonded and surface-coated with a composition layer having as a major constituent natural or synthetic rubber. In general it has been accepted that these offset printing blankets had to be composed of a plurality of layers so as to insure the proper strength and thickness to the blanket. The multi-ply printing blankets currently used are difficult and expensive to manufacture and have to be discarded in toto upon surface wear, and for other reasons such as surface damage, etc.

It is one of the objects of the present invention, therefore, to provide for an offset printing press having a printing cylinder, novel blanket means including a single-ply covering blanket of high strength and completely independent of a packing blanket.

Another object of the present invention is to provide a novel finely-woven single-ply printer's blanket for offset printing press cylinders of high tenacity rayon material.

Still another object of the present invention is to provide in combination with a printing cylinder of an offset press a plurality of blankets, the inner packing blanket having a shorter length and held in place by the longer outer or covering blanket.

Other objects and advantages of the present invention will become apparent from the subsequent description and figures of the drawing wherein:

FIG. 1 is a diagrammatic section of a portion of the blankets, and

FIG. 2 is a diagrammatic end elevation of a printing cylinder having mounted thereon a pair of blankets of varied lengths.

Referring to the figures of the drawing, FIG. 1 represents diagrammatically an independent top or covering blanket indicated in general at **10**, comprising a fabric base **11** and an ink-receiving coating **21**. At **13** there is indicated diagrammatically a lower or packing blanket which may be of a single ply as shown or may be of a plurality of plies. Further, the packing blanket may be of conventional construction and provided with bonding layers and facing layers of rubber composition. It is essential, however, that the packing blanket **13** be fairly resilient so as to form a cushion for the blanket **10**.

Referring to FIG. 2, there is shown at **14** a conventional printing cylinder of an offset printing press. As shown, the printing cylinder has mounted thereon the covering blanket **10** and the packing blanket **13**. As indicated at **15**, the packing blanket **13** is of a lesser lentgh than the covering blanket **10**. The ends **16** and **17** of the blankets **10** and **13**, respectively, are held between a bar **18** and a holding bar **19**, and means are provided to hold the bars together and to the cylinder as indicated by the screw or bolt **20**. Rotatable with the cylinder is a conventional tightening roll **21** having a ratchet wheel **22** rotatable therewith. The end **23** of the blanket **10** is wound about the tightening roll and the roll is held in position by the pawl **24** cooperating with the ratchet

wheel **22**. By this means different stretch of the two blankets **10** and **13** is avoided.

The fabric layer **11** of the blanket **10** is preferably formed of a high tenacity rayon yarn, as for example Fortisan rayon, a cellulose acetate yarn of high tenacity, and is preferably square woven so as to prevent any stretch. The fabric **11** has from 60 x 80 threads per inch to 80 x 80 threads per inch, a total thickness of .005 to .015, preferably .009 to .010 inch, and a strength of between 150 lbs. and 500 lbs. per lineal inch, preferably between 250 to 300 lbs. per lineal inch. The ink-receiving layer **12** has a thickness of between .015 and .025 inch, preferably approximately .020, and is composed of natural or synthetic rubber of the types known in the art. These are, for example, polymerized butadiene, acrylonitrile copolymers, olefin polysulfides, polymerized chloroprene, etc. The rubber may compose 50% or more of the finished composition and may contain the usual accelerators, antioxidants, reinforcing pigments, fillers, softeners, plasticizers, activators, and of course a vulcanizing agent such as sulfur. The total thickness, therefore, of the covering blanket will be between .020 and .040 inch and preferably approximately .030

As antioxidants there may be utilized such materials as Neozone A (Dupont), i.e., phenyl-α-naphthalamine, as well as others well known in the rubber compounding art. As softeners there may be such materials as tricresyl phosphate, paraffin, dibutyl phthalate, etc. As an accelerator there may be used such materials as Santocure (Monsanto) or N-cyclohexyl-2-benzothiazyl-sulfonamide, mercaptobenzothiazol, tetramethylthiuramdisulfide, etc.

The reinforcing pigments or fillers may include any of the various grades of carbon black, whiting, clays or the like. The composition should also preferably contain zinc oxide as an activator for the accelerator and stearic acid as a plasticizer and aid in vulcanizing. Preferably in order to render the composition spreadable, there is incorporated with the solid materials a suitable solvent, preferably a hydrocarbon such as toluol, in the proportion of one part of the solid ingredients to one part of toluol or in somewhat greater proportions.

Since the conventional printer's blanket in the case of a three-ply blanket has a thickness of from .062 to .066 inch, and from .072 to .076 in the case of a four-ply blanket, the packing blanket **13** should preferably be of a thickness so that the composite dimension of both the covering blanket **10** and the blanket **13** is equal to these figures. As may be understood, depending on the particular undercut of the printing cylinder, there may be used with the blanket **10** and the blanket **13** the conventional paper underpacking and make-ready.

The following specific example serves to illustrate a suitable covering blanket **10**:

Example

A square woven fine Fortisan fabric having a strength of approximately 300 lbs. per lineal inch and a thickness of .009 inch was conventionally coated with a composition of the following constitution: Buna N, 100 parts by weight; Santocure 1, one part by weight; Neozone A, one part by weight; carbon black, 50 parts by weight; dibutyl phthalate, ten parts by weight; zinc oxide, five parts by weight; sulfur, two parts by weight; and stearic acid, one part by weight. To the foregoing solid constituents for each part of solid there was added one part of toluol. The mixture was suitably milled and then coated on the fabric in a conventional manner to form a smooth coating of .020 inch in thickness. It was then vulcanized at 290° F. for approximately two hours. The resultant single-ply printer's blanket was mounted upon a cylinder of an off-

set printing press in the manner indicated in FIG. 2 over a packing blanket and was capable of receiving sufficient tension to maintain both the cover blanket and the packing blanket on the printing cylinder.

I claim:

1. In an offset printing press having an offset cylinder for receiving an inked impression, blanket means for covering said cylinder including a packing blanket, an independent covering blanket comprising a single ply having a thickness of .005 to .015 inch of finely woven high tenacity yarn whereby the covering blanket has a relatively smooth surface and a strength of between 150 and 500 lbs. per lineal inch, and an ink-receiving coating on said single ply of from .015 to .025 inch, said covering blanket being of a greater length than said packing blanket, means for securing one end of both blankets to said cylinder and means to secure the other end of said covering blanket to said cylinder whereby said covering blanket retains said packing blanket on said cylinder.

2. In an offset printing press having an offset cylinder for receiving an inked impression, blanket means for covering said cylinder including a packing blanket, an independent covering blanket comprising a single ply of finely woven high tenacity yarn having a strength of between 150 and 500 lbs. per lineal inch having a smooth surface covered with an ink-receiving coating and having a total thickness of .020 to .040, the total thickness of said blanket means being that of a conventional multiply blanket, said covering blanket being of greater length than said packing blanket, means for securing one end of both blankets to said cylinder and means to secure the other end of said covering blanket to said cylinder, whereby said covering blanket retains said packing blanket on said cylinder.

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